## Innovative notebook

*scientific speculation by Jueneman*

# will the real monster please stand up

ONCE UPON A TIME, toward the close of the 17th Century, science created a monster. It was a rather unruly beast that had much of the awkward romantic charm of Mary Shelley's creation, *Frankenstein,* and, it was known as the Phlogiston Theory.

The theory was useful in that it explained the mystical process of oxidation with which, up until then, alchemy had had a bit of trouble. In its most refined form, the Phlogiston Theory ascribed a negative mass to the ephemeral substance lost by burning, which is why oxidized metals gained weight.

Forming part of the birth pangs of modern chemistry, the Phlogiston Theory was finally laid to rest by the end of the 18th Century, closing another chapter in the history of science.

Then, less than 100 years later, the world of physics was compelled to explain the propagation of light waves through space, and the Ether Theory was born. But Michelson's experiment with the interferometer, in the 1880s, failed to detect any motion of the earth through this ether and the theory was in trouble.

Einstein later independently developed his theories by abandoning the ether concept altogether. So, by 1920 the references to the Ether Theory were fewer and further between and it appeared as if another chapter was about to close.

But, wait! During the 1950s the concept of a subquantic medium was being developed by de Broglie, in which this revitalized "ether" was made up of very light particles, leptons. As forwarded by Prof H. C. Dudley, of the University of Illinois, these leptons travel isotropically every which way with all possible energies, filling our universe—and presumably slopping over into others. In short, a "Neutrino Sea."

Dudley noted that "Michelson didn't detect the 'ether,' not because his apparatus was faulty, but probably because he was attuned to only our motion about the sun. Michelson had no way of knowing then that our solar system as a whole travels in its galactic orbit at 5 to 7 times the earth's velocity around the sun. Nor did he know that the angle of this galactic motion may well have foreordained a 'negative' result."

However, our "classical" half-century-old Quantum Theory, as espoused by the acausalists, isn't very compatible with this newer view and the lines are even now being drawn for a pitched battle of the quanta.

The acausalist concept, for example, allows a radioisotope to spontaneously disintegrate with no prior urging, while the cause-and-effect group feel that it is prodded into disintegration—by the leptons.

Being a chemist, involved inextricably with causes and effects, my sympathies naturally gravitate toward the C & E camp. But, also being practical on occasion, I think there must be some way to prove or disapprove this metaphysical appearing problem.

Neutrinos generally are supposed to pass through the earth without a second thought, though these are apparently leptons of high energy. But, if the isotropic sea contains neutrinos of all possible velocities and energies, then the law of averages says that a certain number will impinge on and be absorbed by matter. As a natural consequence a nucleide may be hit by one or more of these leptons, become unstable and reradiate other particles.

Where some isotopes are inherently metastable it wouldn't take much to push them over the edge, and they would have a relatively short half-life. The long-lived isotopes, measured in gigayears, may be able to absorb quite a few before falling apart.

And even the so-called stable elements—the term may be relative—might be able to take on a large supply for indefinitely long periods, or else reradiate other uncharacterized energetics, such as photons, phonons, or whatever.

There just might be a way to test this theory. The astrophysicists tell us that supernova explosions are generators of enormous quantities of neutrinos, which would cause some pretty good breakers in the isotropic sea. But over the last 2,000 years we have had only roughly half a dozen novas that were reasonably close by to give a groundswell.

And, even if we had the technical capability, to induce our own sun to go nova automatically would terminate the experiment. There was, however, a biggie nearby about 11,000 years ago that could shed some light on the hypothesis, and the dilemma.

The remnant of that local big bang is a pulsar called Vela-X (PSR 0833-45), which recent observations have positioned in the southern sky some 1,500 light years away, and which is considered to have given rise to the huge Gum Nebula. An index of its age usually is ascribed to the rate of pulsation of the throbbing remnant.

Being so close, the anisotropic neutrino flux of the superexplosion must have had the peculiar characteristic of resetting all our atomic clocks. This would knock our carbon-14, potassium-argon, and uranium-lead dating measurements into a cocked hat! The age of prehistoric artifacts, the age of the earth, and that of the universe would be thrown into doubt.

Without waiting for another supernova to bathe us in its warming rays, we have the tricky problem of deciding for what time the clocks were set, prior to their being reset. In the meantime we may have to disbelieve everything that has gone on before—but I wouldn't begin to suggest such a monstrous thing, no sir. ■

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